



# Morbidity and Mortality

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REPORT

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U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

HEALTH SERVICES AND MENTAL HEALTH ADMINISTRATION

PUBLIC HEALTH SERVICE

## INTERNATIONAL NOTES FOLLOW-UP INFLUENZA LABORATORY FINDINGS Hong Kong Isolates

Further indication of the magnitude of antigenic difference between the Hong Kong isolates and the previous influenza A2 strains (MMWR, Vol. 17, No. 33) may be seen in the patterns of antibody response from confirmed cases of influenza occurring during the 1967-68 outbreak in the United States and from persons recently vaccinated. Table 1 shows the results of hemagglutination inhibition (HI) tests with paired sera from three such groups: Group I consists of acute and convalescent serum pairs from 32 persons ages 4 to 75 who had a laboratory confirmed diagnosis of A2 influenza during the 1967-68 season. Group II consists

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of pre- and post-vaccine serum pairs from 87 healthy prison volunteers who received a single dose of 1967-68 commercial polyvalent vaccine in November 1967. Group III consists of pre- and post-vaccine serum pairs from 36 elderly persons (ages 70-74) who received 2 doses of 1967-68 commercial bivalent vaccine in October-November 1967.

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TABLE I. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES  
(Cumulative totals include revised and delayed reports through previous weeks)

DISEASE	34th WEEK ENDED		MEDIAN 1963 - 1967	CUMULATIVE, FIRST 34 WEEKS		
	August 24, 1968	August 26, 1967		1968	1967	MEDIAN 1963 - 1967
Aseptic meningitis	156	122	74	1,945	1,510	1,177
Brucellosis	9	—	9	141	170	170
Diphtheria	3	2	2	105	67	113
Encephalitis, primary:						
Arthropod-borne & unspecified	45	48	—	698	974	—
Encephalitis, post-infectious	9	11	—	350	606	—
Hepatitis, serum	94	52	—	2,780	1,397	—
Hepatitis, infectious	856	731	638	28,613	24,951	26,005
Malaria	33	42	5	1,378	1,276	65
Measles (rubeola)	91	175	598	19,336	57,254	238,672
Meningococcal infections, total	47	21	28	1,943	1,616	1,886
Civilian	47	20	—	1,768	1,504	—
Military	—	1	—	175	112	—
Mumps	502	—	—	123,275	—	—
Poliomyelitis, total	—	—	4	35	23	61
Paralytic	—	—	2	35	20	57
Rubella (German measles)	214	178	—	43,037	39,467	—
Streptococcal sore throat & scarlet fever	3,976	4,610	3,933	291,916	314,899	283,488
Tetanus	5	3	4	98	141	157
Tularemia	4	5	5	130	118	166
Typhoid fever	6	6	9	211	257	258
Typhus, tick-borne (Rky. Mt. spotted fever)	13	13	11	208	216	181
Rabies in animals	61	81	75	2,375	2,983	2,983

TABLE II. NOTIFIABLE DISEASES OF LOW FREQUENCY

	Cum.		Cum.
Anthrax:	3	Rabies in man:	—
Botulism:	4	Rubella, Congenital Syndrome:	4
Leptospirosis: La-1:	25	Trichinosis:	47
Plague:	2	Typhus, murine: N.J.-1:	20
Psittacosis: Ariz.-1:	34		

\*Delayed reports: Trichinosis: Colo. delete 1

Data exclude report from Texas - Shortage of Help

## FOLLOW-UP INFLUENZA LABORATORY FINDINGS - (Continued from first page)

Table 1  
HI Antibody Response to Hong Kong 8/68 and Selected Influenza Virus Strains

Group	Number in Group	Antigen	Serum 1		Serum 2**		Serum pairs Showing $\geq 4$ fold titer rise (%)
			Titers $\geq 1:10$ (%)	GM* Titer	Titers $\geq 1:10$ (%)	GM* Titer	
I. Clinical Illnesses (1-75 yrs.)	32	A2 Japan 170/62	75	21	100	437	100
		A2 Georgia 19/67	41	10	100	101	100
		A2 Tokyo 3/67	28	10	94	54	88
		Hong Kong 8/68	3	10	34	10	19
II. Vaccine (prison)	87	A2 Japan 170/62	94	73	97	110	24
		A2 Tokyo 3/67	65	11	70	17	16
		Hong Kong 8/68	11	10	33	10	11
III. Vaccine (elderly)	36	A2 Japan 170/62	39	10	100	259	92
		A2 Tokyo 3/67	25	10	86	28	53
		Hong Kong 8/68	6	10	36	10	12

\*GM = Geometric mean titers of total group.

\*\*Convalescent sera collected approximately 3 weeks after onset. Post-vaccine sera collected 3 weeks after final injection.

Group I convalescent sera showed a high geometric mean (GM) titer to A2 Japan 170/62, one of the two A2 strains in the current vaccine, and all serum pairs responded with a fourfold or greater rise to that antigen. Similar results, although with somewhat lower GM titers, were obtained with A2 Georgia 19/67, the strain representing isolates from the 1967-68 influenza outbreak in the United States. A significant response was also noted with A2 Tokyo 3/67 which is antigenically somewhat different from either of the above viruses and is similar to isolates from current outbreaks in Australia, New Zealand, and South Africa. However, antibody response to the Hong Kong strain was considerably lower. The GM titer of the convalescent sera was  $\geq 10$  and only 19 percent of the serum pairs showed a fourfold or greater increase in titer.

The vaccinees in Group II had low fourfold response rates to all strains, including A2 Japan 170/62. While the individuals in Group III gave excellent reactions to the 1962 and 1967 A2 viruses as measured by percent of four-

fold responses and rise in GM titer, their response to the Hong Kong strain was not appreciably increased over that of Group II.

Homotypic and heterotypic antibody responses of vaccinees depend both on the potency of the vaccine and the age and prior influenza experience of the recipient. This is also true to some extent for individuals recovering from the natural disease. While serum antibody titers are only indirectly related to protection, individuals demonstrating peak heterotypic antibody titers following immunization or natural disease would be considered at lowest risk of infection. The antibody responses in all three groups, measured with the Hong Kong antigen, are minimal.

These results with human sera confirm the previous findings based on reciprocal HI tests with monospecific animal sera. The Hong Kong 8/68 strain represents a considerable antigenic change from earlier A2 influenza isolates.

(Reported by the World Health Organization International Influenza Center for the Americas, CDC.)

#### EPIDEMIOLOGIC NOTES AND REPORTS INTRODUCED MALARIA - Alabama

Between August 15 and 19, four cases of malaria were reported in teenagers who live or vacationed in eastern Alabama. None of the patients had been in malarious areas, received blood transfusions, or used common syringes. The infections were due to *Plasmodium vivax*, acquired through mosquito transmission at a drive-in movie theater during 3 different nights.

M.W., an 18-year-old male student, first experienced severe headache and backache on August 8. This was followed by an intermittent course of fever, chills, and diaphoresis. He was hospitalized on August 12, and malaria parasites were found in his peripheral blood on August 15. He, as well as the other three patients, were successfully treated with the recommended 3-day course of chloroquine followed by 14 days of primaquine.

D.D., the 18-year-old girl friend of M.W., became ill on August 12. She was hospitalized on August 14, and the diagnosis of malaria was made the following day.

T.B., a 17-year-old male student, also became ill on August 12. He was hospitalized on August 18, and the diagnosis of malaria was made on August 19.

L.H., a 15-year-old female, unlike the other patients, was not a resident of Alabama; however, she did visit Alabama from July 20 to August 11. She became ill on August 10 but returned to her home in western New York the following day. She was hospitalized on August 16, and the diagnosis of malaria was made shortly thereafter.

The only factor that all patients had in common was attendance at a local drive-in movie theater. L.H. attended on July 26, D.D. and M.W. on July 27, and T.B. on July 28

(Figure 1). Although they attended the same drive-in theater at other times during the summer, each patient attended only once during that week. The average time from attendance at the drive-in until onset of symptoms was 14 days. None of the patients' friends who were with them at the drive-in became ill.

The drive-in theater is located by a state highway and is surrounded by at least eight ponds. Anopheline mosquitoes are prevalent in the area. A major university and trailer parks are located in the immediate vicinity and a large Army base is approximately 30 miles away. It is believed that the malaria parasite donor is probably a foreign student or a soldier who has returned from South East Asia to the military base or to the university.

Shortly after the onsets of their illnesses, three of the patients were reexposed to mosquitoes. M.W. and L.D.,

although they were unknown to each other, both returned to the drive-in theater on August 10 when they were febrile. T.B. camped out overnight in a nearby fishing area on August 15 when he was febrile.

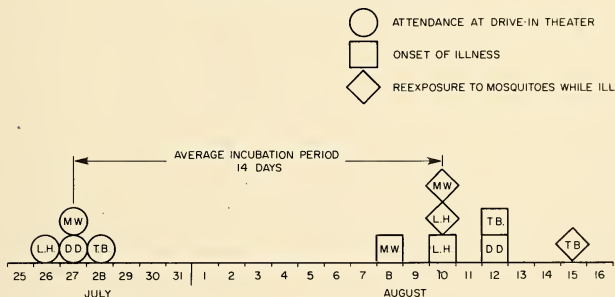
An epidemiologic investigation is underway to locate the parasite carrier and other possible cases.

(Reported by J. R. Herring, M.D., Lafayette, Alabama; W. H. Y. Smith, M.D., C.P.H., Alabama State Department of Public Health; Julia L. Freitag, M.D., Director, Bureau of Epidemiology, New York State Department of Health; and a team of EIS Officers.)

#### Editorial Note:

Transmission of malaria by mosquitoes is now a rare event in the United States. Previous episodes of introduced malaria during this decade have been isolated cases and have been confined to military reservations.

Figure 1  
INTRODUCED *PLASMODIUM VIVAX* MALARIA  
ALABAMA, JULY 25-AUGUST 16, 1968



#### EPIDEMIC OF OBSCURE ILLNESS - Pontiac, Michigan

On July 2, 1968, an acute febrile illness with marked constitutional symptoms developed in employees of the Oakland County Health Department, Pontiac, Michigan. By the following day, 95 percent of the employees who had been present in the building on July 1 were ill. Additional cases continued to occur in some persons newly exposed during the next 5 weeks. The syndrome was highly uniform, consisting of fever, chills, malaise, headache, and myalgia, with onset from 1 to 2 days after initial exposure in the building. The illness was self-limited, lasting an average of 3 to 5 days. Some employees complained of a variety of related symptoms in the ensuing weeks; however, in many of these cases, there was no clear relationship between recrudescence symptoms and reexposure in the building, and the majority of employees did not develop illness upon reexposure. Close contacts of ill persons were apparently not affected with clinical illness

nor were people in nearby buildings or in the community at large.

Physical examination of patients in both acute and convalescent stages of illness was uniformly negative. A sampling of white blood cell counts showed modest polymorphonuclear leukocytosis, but extensive clinical laboratory tests failed to show any other abnormalities. Serial chest X-rays were negative as were electrocardiograms on patients without pre-existing cardiac disease.

Epidemiologic analysis excluded a water-borne mode of spread and strongly implicated the air conditioning system as the source or means of spread of the responsible agent. It has been established that defects in the air conditioning system permitted cross connections to exist between bacteriologically contaminated exhaust ducts and the cool air distribution system in the building.

(Continued on page 320)

## Morbidity and Mortality Weekly Report

TABLE III. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES

FOR WEEKS ENDED  
AUGUST 24, 1968 AND AUGUST 26, 1967 (34th WEEK)

AREA	ASEPTIC MENINGITIS		BRI CELLULOSIS	DIPHTHERIA	ENCEPHALITIS			HEPATITIS			MALARIA
					Primary including unsp. cases		Post- Infectious	Serum	Infectious		
	1968	1967	1968	1968	1968	1967	1968	1968	1967	1968	
UNITED STATES...	156	122	9	3	45	48	9	94	856	731	33
NEW ENGLAND.....	1	1	-	-	-	1	-	4	60	19	1
Maine.....	-	-	-	-	-	-	-	-	-	1	-
New Hampshire.....	-	-	-	-	-	-	-	-	-	-	-
Vermont.....	-	-	-	-	-	-	-	-	3	-	-
Massachusetts.....	-	1	-	-	-	-	-	2	33	8	1
Rhode Island.....	-	-	-	-	-	-	-	-	8	-	-
Connecticut.....	1	-	-	-	-	1	-	2	16	10	-
MIDDLE ATLANTIC.....	32	18	-	-	9	-	2	27	146	133	7
New York City.....	-	1	-	-	-	-	-	18	55	51	3
New York, up-State.....	3	5	-	-	-	-	-	3	31	37	2
New Jersey.....	28	11	-	-	5	-	-	3	23	20	2
Pennsylvania.....	1	1	-	-	4	-	2	3	37	25	-
EAST NORTH CENTRAL...	26	16	-	-	13	28	-	9	121	87	1
Ohio.....	18	2	-	-	12	27	-	1	42	17	-
Indiana.....	-	-	-	-	-	-	-	-	6	11	-
Illinois.....	1	13	-	-	-	-	-	-	35	25	-
Michigan.....	7	1	-	-	1	-	-	8	32	30	1
Wisconsin.....	-	-	-	-	-	1	-	-	6	4	-
WEST NORTH CENTRAL...	16	2	-	-	4	4	2	-	47	32	1
Minnesota.....	4	2	-	-	-	1	1	-	19	11	-
Iowa.....	-	-	-	-	2	-	-	-	2	1	-
Missouri.....	9	-	-	-	-	-	-	-	14	12	-
North Dakota.....	3	-	-	-	1	-	-	-	7	3	-
South Dakota.....	-	-	-	-	-	1	-	-	1	-	-
Nebraska.....	-	-	-	-	-	-	-	-	5	4	1
Kansas.....	-	-	-	-	1	2	1	-	6	4	-
SOUTH ATLANTIC.....	18	25	6	-	4	4	1	5	74	87	7
Delaware.....	1	-	-	-	-	-	-	-	3	4	-
Maryland.....	7	22	-	-	-	-	1	2	15	20	1
Dist. of Columbia...	-	-	-	-	-	-	-	1	-	2	-
Virginia.....	6	-	6	-	3	-	-	1	14	19	-
West Virginia.....	-	1	-	-	-	3	-	-	7	3	-
North Carolina.....	2	1	-	-	-	-	-	-	7	3	4
South Carolina.....	1	-	-	-	1	-	-	-	2	-	2
Georgia.....	-	-	-	-	-	-	-	-	-	15	-
Florida.....	1	1	-	-	-	1	-	1	26	21	-
EAST SOUTH CENTRAL...	20	8	2	-	2	2	-	3	45	44	4
Kentucky.....	1	2	-	-	-	2	-	-	24	10	-
Tennessee.....	17	3	2	-	1	-	-	3	13	21	-
Alabama.....	2	2	-	-	-	-	-	-	1	5	4
Mississippi.....	-	1	-	-	1	-	-	-	7	8	-
WEST SOUTH CENTRAL...	1	17	-	3	2	3	-	2	22	75	-
Arkansas.....	-	10	-	-	-	2	-	-	4	3	-
Louisiana.....	1	2	-	3	1	-	-	2	11	15	-
Oklahoma.....	-	1	-	-	1	1	-	-	7	6	-
Texas.....	---	4	---	---	---	-	---	---	---	51	---
MOUNTAIN.....	5	4	-	-	3	1	-	-	66	33	3
Montana.....	-	-	-	-	-	-	-	-	5	-	-
Idaho.....	-	-	-	-	1	-	-	-	1	-	-
Wyoming.....	-	-	-	-	-	-	-	-	2	2	-
Colorado.....	5	-	-	-	2	-	-	-	38	14	3
New Mexico.....	-	2	-	-	-	1	-	-	-	8	-
Arizona.....	-	2	-	-	-	-	-	-	13	8	-
Utah.....	-	-	-	-	-	-	-	-	6	1	-
Nevada.....	-	-	-	-	-	-	-	-	1	-	-
PACIFIC.....	37	31	1	-	8	5	4	44	275	221	9
Washington.....	2	2	-	-	-	-	-	-	22	26	2
Oregon.....	2	1	-	-	-	-	-	-	7	14	-
California.....	32	26	1	-	8	4	4	44	245	178	7
Alaska.....	-	-	-	-	-	-	-	-	1	2	-
Hawaii.....	1	2	-	-	-	1	-	-	-	1	-
Puerto Rico.....	-	-	-	-	-	-	-	-	22	33	-

\* Delayed reports: Hepatitis, infectious: Me. 1

TABLE III. CASES OF SPECIFIED NOTIFIABLE DISEASES, UNITED STATES  
FOR WEEKS ENDED  
AUGUST 24, 1968 AND AUGUST 26, 1967 (34th WEEK) - CONTINUED

AREA	MEASLES (Rubeola)			MENINGOCOCCAL INFECTIONS, TOTAL			MUMPS	POLIOMYELITIS			RUBELLA
	1968	Cumulative		1968	Cumulative			Total	Paralytic		
		1968	1967		1968	1967		1968	1968	1968	
UNITED STATES...	91	19,336	57,254	47	1,943	1,616	502	-	-	35	214
NEW ENGLAND.....	4	1,145	836	15	116	67	65	-	-	1	20
Maine, A.....	-	37	238	-	6	3	6	-	-	-	2
New Hampshire.....	-	141	74	-	7	2	-	-	-	-	2
Vermont.....	-	2	34	-	1	1	1	-	-	-	1
Massachusetts, A.....	1	357	339	15	63	32	38	-	-	1	8
Rhode Island.....	-	5	62	-	8	4	8	-	-	-	-
Connecticut.....	3	603	89	-	31	25	12	-	-	-	7
MIDDLE ATLANTIC.....	44	3,992	2,236	8	349	266	60	-	-	-	37
New York City.....	33	2,027	447	1	70	48	56	-	-	-	20
New York, Up-State.....	5	1,215	574	4	63	66	NN	-	-	-	15
New Jersey.....	6	621	484	-	122	92	4	-	-	-	1
Pennsylvania, A.....	-	129	731	3	94	60	NN	-	-	-	1
EAST NORTH CENTRAL...	15	3,722	5,318	1	228	218	121	-	-	1	47
Ohio.....	2	291	1,137	1	63	75	17	-	-	-	10
Indiana, A.....	4	657	592	-	28	22	9	-	-	-	7
Illinois.....	-	1,356	938	-	51	53	6	-	-	1	3
Michigan.....	4	265	917	-	66	52	24	-	-	-	10
Wisconsin.....	5	1,153	1,734	-	20	16	65	-	-	-	17
WEST NORTH CENTRAL...	1	380	2,839	2	103	70	14	-	-	1	10
Minnesota.....	-	16	131	2	26	17	1	-	-	-	-
Iowa.....	1	98	746	-	6	14	9	-	-	-	3
Missouri.....	-	81	332	-	32	14	1	-	-	1	3
North Dakota.....	-	131	859	-	3	1	3	-	-	-	1
South Dakota.....	-	4	52	-	5	6	NN	-	-	-	-
Nebraska.....	-	40	626	-	6	12	-	-	-	-	3
Kansas.....	-	10	93	-	25	6	-	-	-	-	-
SOUTH ATLANTIC.....	5	1,485	6,836	7	392	309	41	-	-	1	36
Delaware.....	-	15	45	-	8	6	1	-	-	-	1
Maryland.....	1	95	152	2	30	38	9	-	-	-	6
Dist. of Columbia.....	-	6	22	-	14	10	3	-	-	-	1
Virginia.....	3	300	2,179	2	33	38	8	-	-	-	3
West Virginia.....	1	281	1,377	-	10	21	15	-	-	-	19
North Carolina.....	-	281	847	-	76	66	NN	-	-	-	-
South Carolina.....	-	12	510	-	56	29	2	-	-	-	-
Georgia.....	-	4	34	3	76	47	-	-	-	-	-
Florida.....	-	491	1,670	-	89	54	5	-	-	-	6
EAST SOUTH CENTRAL...	-	487	5,149	7	169	127	47	-	-	2	18
Kentucky.....	-	99	1,321	7	72	35	2	-	-	1	4
Tennessee.....	-	61	1,844	-	52	53	43	-	-	-	14
Alabama.....	-	93	1,322	-	24	26	2	-	-	1	-
Mississippi.....	-	234	662	-	21	13	-	-	-	-	-
WEST SOUTH CENTRAL...	1	4,680	17,214	1	302	215	1	-	-	19	1
Arkansas.....	-	3	1,404	-	20	28	-	-	-	-	-
Louisiana.....	-	2	152	1	87	85	-	-	-	-	-
Oklahoma.....	1	112	3,349	-	49	16	1	-	-	2	1
Texas.....	---	4,563	12,309	---	146	86	---	---	---	17	---
MOUNTAIN.....	3	987	4,602	-	29	27	53	-	-	-	27
Montana.....	-	67	282	-	3	-	3	-	-	-	6
Idaho.....	-	20	377	-	11	1	1	-	-	-	-
Wyoming.....	-	51	180	-	-	1	-	-	-	-	-
Colorado.....	2	505	1,544	-	10	12	17	-	-	-	6
New Mexico.....	1	97	578	-	-	3	5	-	-	-	6
Arizona.....	-	221	1,011	-	1	4	23	-	-	-	8
Utah.....	-	21	361	-	1	4	4	-	-	-	1
Nevada.....	-	5	269	-	3	2	-	-	-	-	-
PACIFIC.....	18	2,458	12,224	6	255	317	100	-	-	10	18
Washington.....	-	515	5,418	-	37	28	-	-	-	1	-
Oregon.....	9	505	1,572	1	20	25	2	-	-	-	2
California.....	9	1,401	4,939	5	185	251	94	-	-	9	15
Alaska.....	-	2	133	-	2	9	3	-	-	-	1
Hawaii.....	-	35	162	-	11	4	1	-	-	-	-
Puerto Rico.....	9	397	2,101	-	19	12	10	-	-	-	-

\* Delayed reports: Measles: Me. 2, Mass. delete 1, N.J. delete 5, Pa. delete 7  
Meningococcal infections: Ind. delete 1  
Mumps: Me. 1  
Rubella: Me. 2

TABLE III. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES  
FOR WEEKS ENDED

AUGUST 24, 1968 AND AUGUST 26, 1967 (34th WEEK) - CONTINUED

AREA	STREPTOCOCCAL SORE THROAT & SCARLET FEVER	TETANUS		TULAREMIA		TYPHOID		TYPHUS FEVER TICK-BORNE (Rky. Mt. Spotted)		RABIES IN ANIMALS	
	1968	1968	Cum. 1968	1968	Cum. 1968	1968	Cum. 1968	1968	Cum. 1968	1968	Cum. 1968
UNITED STATES...	3,976	5	98	4	130	6	211	13	208	61	2,375
NEW ENGLAND.....	423	-	2	-	46	-	7	1	1	1	70
Maine.....	4	-	-	-	-	-	-	-	-	-	53
New Hampshire.....	21	-	-	-	-	-	1	-	-	-	2
Vermont.....	19	-	-	-	46	-	-	-	-	1	11
Massachusetts.....	59	-	1	-	-	-	3	1	1	-	3
Rhode Island.....	49	-	-	-	-	-	-	-	-	-	-
Connecticut.....	271	-	1	-	-	-	3	-	-	-	1
MIDDLE ATLANTIC.....	124	-	12	-	7	-	19	-	14	2	34
New York City.....	5	-	6	-	-	-	9	-	-	-	-
New York, Up-State.....	116	-	4	-	7	-	3	-	2	2	27
New Jersey.....	NW	-	-	-	-	-	4	-	6	-	-
Pennsylvania.....	3	-	2	-	-	-	3	-	6	-	7
EAST NORTH CENTRAL...	248	-	9	-	8	-	27	1	7	12	228
Ohio.....	9	-	-	-	1	-	12	1	5	2	86
Indiana.....	71	-	1	-	1	-	3	-	-	1	75
Illinois.....	71	-	5	-	5	-	11	-	2	1	28
Michigan.....	61	-	3	-	1	-	-	-	-	1	11
Wisconsin.....	36	-	-	-	-	-	1	-	-	7	28
WEST NORTH CENTRAL...	158	1	6	2	11	1	10	-	7	18	590
Minnesota.....	28	-	1	-	-	-	-	-	-	7	176
Iowa.....	38	-	2	-	-	-	-	-	1	4	98
Missouri.....	9	-	2	-	7	-	3	-	1	4	86
North Dakota.....	14	-	-	-	-	-	-	-	-	2	93
South Dakota.....	6	-	-	1	2	-	1	-	4	-	79
Nebraska.....	26	1	1	-	-	-	3	-	1	-	25
Kansas.....	37	-	-	1	2	1	2	-	-	1	33
SOUTH ATLANTIC.....	546	-	21	-	8	1	45	7	117	8	260
Delaware.....	2	-	-	-	-	-	-	-	-	-	-
Maryland.....	105	-	2	-	-	-	9	-	12	-	5
Dist. of Columbia.....	32	-	2	-	-	-	2	-	-	-	1
Virginia.....	128	-	4	-	1	1	9	6	41	2	97
West Virginia.....	139	-	1	-	-	-	-	-	-	-	31
North Carolina.....	14	-	2	-	2	-	2	1	29	1	10
South Carolina.....	11	-	2	-	-	-	-	-	6	-	-
Georgia.....	2	-	-	-	3	-	12	-	26	3	41
Florida.....	113	-	8	-	2	-	11	-	3	2	75
EAST SOUTH CENTRAL...	901	3	13	-	7	2	26	3	38	7	521
Kentucky.....	74	-	1	-	1	-	5	-	8	6	260
Tennessee.....	729	2	5	-	5	1	14	3	25	-	238
Alabama.....	43	1	4	-	-	-	-	-	3	1	22
Mississippi.....	55	-	3	-	1	1	7	-	2	-	1
WEST SOUTH CENTRAL...	45	-	19	2	35	-	29	1	18	4	397
Arkansas.....	20	-	4	2	8	-	4	1	3	2	48
Louisiana.....	14	-	8	-	6	-	3	-	-	2	37
Oklahoma.....	11	-	-	-	8	-	12	-	8	-	116
Texas.....	---	---	7	---	13	---	10	---	7	---	196
MOUNTAIN.....	1,082	-	-	-	6	-	13	-	5	2	64
Montana.....	16	-	-	-	-	-	-	-	-	-	-
Idaho.....	54	-	-	-	-	-	-	-	1	-	-
Wyoming.....	24	-	-	-	1	-	1	-	-	-	3
Colorado.....	671	-	-	-	3	-	2	-	4	-	3
New Mexico.....	207	-	-	-	-	-	6	-	-	1	26
Arizona.....	55	-	-	-	-	-	3	-	-	1	32
Utah.....	55	-	-	-	2	-	-	-	-	-	-
Nevada.....	-	-	-	-	-	-	1	-	-	-	-
PACIFIC.....	449	1	16	-	2	2	35	-	1	7	211
Washington.....	48	-	1	-	-	-	2	-	-	-	2
Oregon.....	47	-	1	-	1	-	4	-	-	-	5
California.....	315	1	14	-	1	2	29	-	1	7	204
Alaska.....	23	-	-	-	-	-	-	-	-	-	-
Hawaii.....	16	-	-	-	-	-	-	-	-	-	-
Puerto Rico.....	15	-	8	-	-	-	2	-	-	-	17

\* Delayed reports: Tetanus: Iowa 1

TABLE IV. DEATHS IN 122 UNITED STATES CITIES FOR WEEK ENDED AUGUST 24, 1968

Area	All Causes		Pneumonia and Influenza All Ages	Under 1 year All Causes	Area	All Causes		Pneumonia and Influenza All Ages	Under 1 year All Causes
	All Ages	65 years and over				All Ages	65 years and over		
NEW ENGLAND:	693	416	38	39	SOUTH ATLANTIC:	1,109	594	42	49
Boston, Mass.-----	220	118	12	19	Atlanta, Ga.-----	141	76	2	4
Bridgeport, Conn.-----	36	20	2	3	Baltimore, Md.-----	241	124	7	13
Cambridge, Mass.-----	30	21	-	1	Charlotte, N. C.-----	51	24	2	4
Fall River, Mass.-----	20	13	1	1	Jacksonville, Fla.-----	86	43	2	5
Hartford, Conn.-----	70	41	1	2	Miami, Fla.-----	91	53	-	1
Lowell, Mass.-----	28	20	-	2	Norfolk, Va.-----	48	24	3	2
Lynn, Mass.-----	18	14	-	1	Richmond, Va.-----	54	26	2	1
New Bedford, Mass.-----	25	19	2	1	Savannah, Ga.-----	29	15	3	2
New Haven, Conn.-----	53	34	3	3	St. Petersburg, Fla.-----	70	56	8	1
Providence, R. I.-----	54	33	5	1	Tampa, Fla.-----	53	32	5	5
Springfield, Mass.-----	12	9	3	1	Washington, D. C.-----	194	91	6	9
Waterbury, Conn.-----	35	19	-	3	Wilmington, Del.-----	51	30	2	2
Worcester, Mass.-----	48	30	3	1	EAST SOUTH CENTRAL:	625	317	33	30
MIDDLE ATLANTIC:	3,075	1,747	126	163	Birmingham, Ala.-----	101	58	1	4
Albany, N. Y.-----	44	23	-	2	Chattanooga, Tenn.-----	45	16	1	4
Allentown, Pa.-----	35	22	3	1	Knoxville, Tenn.-----	37	18	1	-
Buffalo, N. Y.-----	143	90	7	4	Louisville, Ky.-----	113	68	17	3
Camden, N. J.-----	36	23	2	-	Memphis, Tenn.-----	141	72	6	9
Elizabeth, N. J.-----	33	18	-	1	Mobile, Ala.-----	42	18	-	6
Erie, Pa.-----	43	27	3	-	Montgomery, Ala.-----	50	23	4	1
Jersey City, N. J.-----	71	27	6	5	Nashville, Tenn.-----	96	44	3	3
Newark, N. J.-----	91	31	5	25	WEST SOUTH CENTRAL:	1,115	562	36	75
New York City, N. Y.-----	1,599	924	53	79	Austin, Tex.-----	46	24	2	2
Paterson, N. J.-----	38	23	2	-	Baton Rouge, La.-----	39	20	1	-
Philadelphia, Pa.-----	409	229	13	21	Corpus Christi, Tex.-----	26	11	-	3
Pittsburgh, Pa.-----	172	79	13	9	Dallas, Tex.-----	153	70	3	9
Reading, Pa.-----	46	29	2	3	El Paso, Tex.-----	30	16	2	1
Rochester, N. Y.-----	105	61	4	3	Fort Worth, Tex.-----	73	39	1	5
Schenectady, N. Y.-----	18	14	-	1	Houston, Tex.-----	218	101	1	20
Scranton, Pa.-----	29	18	2	-	Little Rock, Ark.-----	56	31	4	5
Syracuse, N. Y.-----	62	42	3	3	New Orleans, La.-----	186	90	7	17
Trenton, N. J.-----	42	20	5	5	Oklahoma City, Okla.-----	93	57	-	5
Utica, N. Y.-----	32	28	-	1	San Antonio, Tex.-----	114	57	6	4
Yonkers, N. Y.-----	27	19	3	1	Shreveport, La.-----	45	24	3	4
EAST NORTH CENTRAL:	2,626	1,490	75	151	Tulsa, Okla.-----	36	22	5	1
Akron, Ohio-----	79	52	-	3	MOUNTAIN:	432	257	17	20
Canton, Ohio-----	44	31	3	-	Albuquerque, N. Mex.-----	40	19	4	3
Chicago, Ill.-----	724	386	26	42	Colorado Springs, Colo.-----	37	23	4	-
Cincinnati, Ohio-----	197	117	4	4	Denver, Colo.-----	111	63	2	3
Cleveland, Ohio-----	173	100	1	17	Ogden, Utah-----	20	18	2	1
Columbus, Ohio-----	123	59	1	10	Phoenix, Ariz.-----	88	51	2	5
Dayton, Ohio-----	103	67	3	3	Pueblo, Colo.-----	22	11	2	2
Detroit, Mich.-----	350	198	8	14	Salt Lake City, Utah-----	53	33	-	4
Evansville, Ind.-----	60	34	3	3	Tucson, Ariz.-----	61	39	1	2
Flint, Mich.-----	70	36	3	1	PACIFIC:	1,451	829	22	77
Fort Wayne, Ind.-----	39	20	1	5	Berkeley, Calif.-----	13	8	-	-
Gary, Ind.-----	38	21	1	3	Fresno, Calif.-----	45	32	-	2
Grand Rapids, Mich.-----	54	38	1	3	Glendale, Calif.-----	28	20	-	2
Indianapolis, Ind.-----	154	72	4	11	Honolulu, Hawaii-----	55	21	-	4
Madison, Wis.-----	31	16	3	4	Long Beach, Calif.-----	89	56	-	2
Milwaukee, Wis.-----	107	66	2	6	Los Angeles, Calif.-----	441	251	7	26
Peoria, Ill.-----	38	23	-	5	Oakland, Calif.-----	95	60	1	1
Rockford, Ill.-----	28	18	2	4	Pasadena, Calif.-----	29	22	-	-
South Bend, Ind.-----	46	25	5	4	Portland, Oreg.-----	97	56	5	5
Toledo, Ohio-----	128	74	4	7	Sacramento, Calif.-----	57	31	1	2
Youngstown, Ohio-----	60	37	-	2	San Diego, Calif.-----	89	43	2	11
WEST NORTH CENTRAL:	771	459	14	31	San Francisco, Calif.-----	153	74	3	5
Des Moines, Iowa-----	68	38	2	7	San Jose, Calif.-----	36	22	-	3
Duluth, Minn.-----	12	7	2	-	Seattle, Wash.-----	124	62	3	10
Kansas City, Kans.-----	43	25	-	1	Spokane, Wash.-----	60	47	-	3
Kansas City, Mo.-----	119	74	1	4	Tacoma, Wash.-----	38	24	-	1
Lincoln, Nebr.-----	30	22	2	-	Total	11,897	6,671	403	635
Minneapolis, Minn.-----	98	61	1	3	Cumulative Totals				
Omaha, Nebr.-----	76	43	-	8	including reported corrections for previous weeks				
St. Louis, Mo.-----	223	118	1	3	All Causes, All Ages-----	436,647			
St. Paul, Minn.-----	60	44	1	-	All Causes, Age 65 and over-----	252,356			
Wichita, Kans.-----	42	27	4	5	Pneumonia and Influenza, All Ages-----	18,077			
					All Causes, Under 1 Year of Age-----	20,442			



## EPIDEMIC OF OBSCURE ILLNESS

(Continued from page 315)

Extensive serial environmental sampling of air, water, sewage, and numerous environmental surfaces for microbiological and toxicologic agents was performed. Throat swabs, stools, acute and convalescent sera, and, in some cases, urine were collected on patients and their family contacts. In addition, a variety of experimental animals were exposed in the building with a febrile response occurring in successive test groups of guinea pigs. Nevertheless, to date, no definitive etiologic agent has been identified from the guinea pigs or from human or environmental samples.

(Reported by Bernard Berngtn, M.D., Director, Oakland County Health Department; George Agate, M.D., M.S.P.H., Chief, Division of Epidemiology, Michigan Department of Public Health; a team from the Michigan Department of Public Health; and a team from NCDC.)

## CADMIUM FOOD POISONING - Minnesota

On June 12, 1968, in St. Louis County, Minnesota, four persons experienced nausea, upper abdominal distress, and vomiting within 15-60 minutes after eating an evening meal at a local drive-in restaurant. All recovered within several hours after receiving medical treatment for their symptoms.

Epidemiologic investigation incriminated cole slaw as the likely vehicle of infection because it was the only food eaten by all four persons. Inspection of the restaurant facilities disclosed a corroded metal shelf in the refrigerator which had recently been plated with cadmium. Cole slaw was stored uncovered beneath this shelf and received drippings of foods stored above (pickles, celery seed dressing, tartar sauce, and probably catsup). It is postulated that some acid foods reacted with the cadmium plating, forming cadmium salts which dripped onto the cole slaw, and that the cadmium salts did not contaminate the entire jar, but remained concentrated on the surface layer; consequently, only four cases of food poisoning occurred. Laboratory examination of the cole slaw revealed the presence of cadmium in a concentration of 6.8 parts per million.

(Reported by A. J. Hauglum, M.D., M.P.H., Executive Officer, St. Louis County Health Department; and D. S. Fleming, M.D., M.P.H., Director, Division of Disease Prevention and Control, Minnesota Department of Health.)

## Editorial Note:

In previous reports of cadmium food poisoning, as little as 10 mg of cadmium has been reported to cause the symptom complex of headache, nausea, salivation, vomiting, diarrhea, and stomach and muscular pains 1/2 to 2 hours after ingestion.<sup>1</sup>

## Reference:

<sup>1</sup>Baker, Timothy D., and Hafner, William C.: Cadmium poisoning from a refrigerator shelf used as an improvised barbecue grill. PUBLIC HEALTH REP. 76:543-544, 1961.

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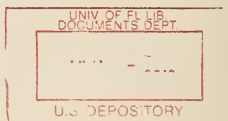
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NOTE: THE DATA IN THIS REPORT ARE PROVISIONAL AND ARE BASED ON WEEKLY TELEGRAMS TO THE NCDC BY THE INDIVIDUAL STATE HEALTH DEPARTMENTS. THE REPORTING WEEK CONCLUDES ON SATURDAY. COMPILED DATA ON A NATIONAL BASIS ARE RELEASED ON THE SUCCEEDING FRIDAY.

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